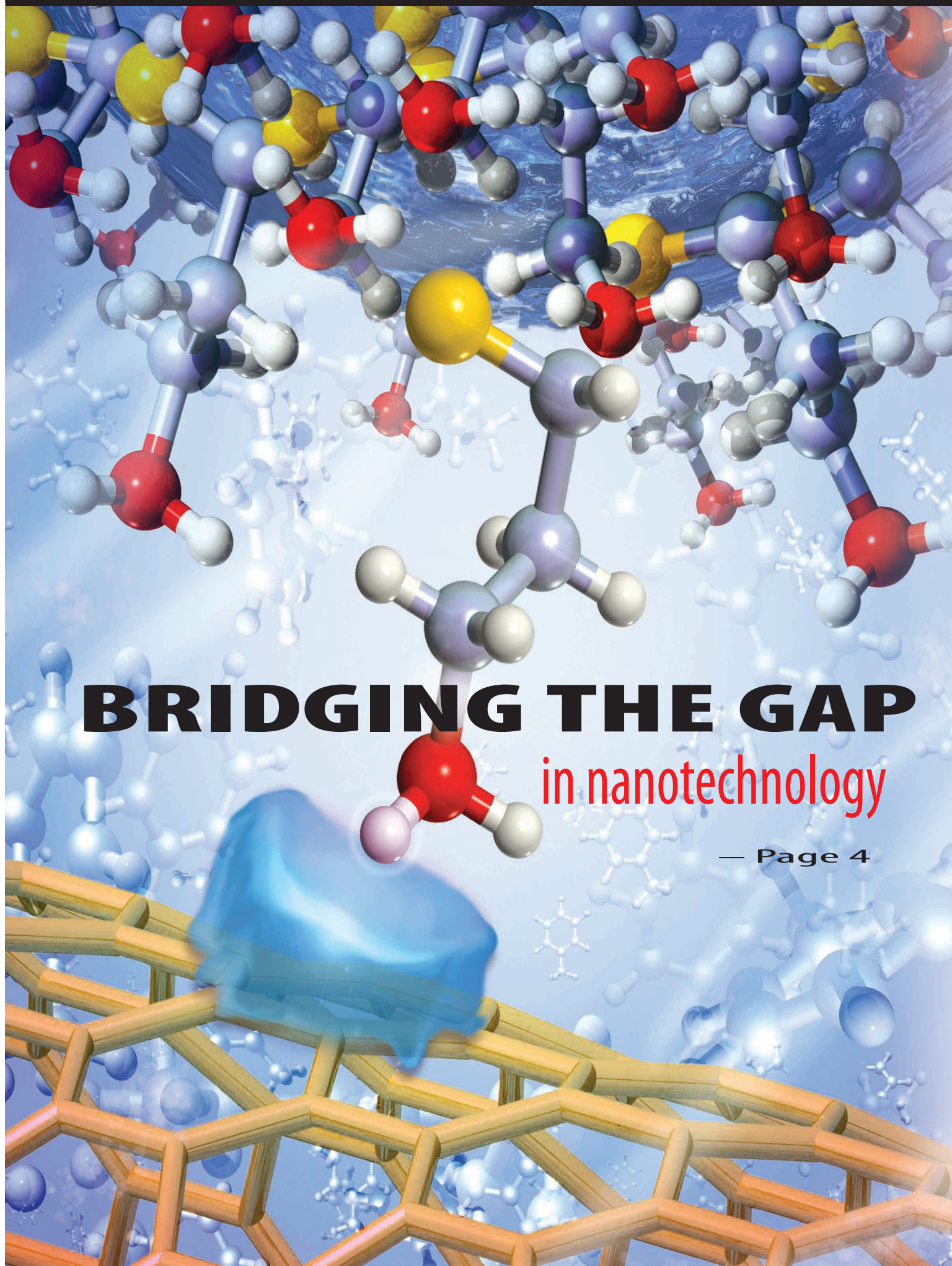


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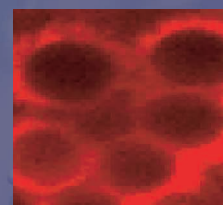
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Tomás Díaz de la Rubia named AAAS fellow

By Anne M. Stark
Newsline staff writer

Tomás Díaz de la Rubia, associate director for the Chemistry, Materials, Earth and Life Science (CMELS) Directorate, has been awarded the distinction of fellow of the American Association for the Advancement of Science (AAAS).

Selection as a fellow is an honor bestowed upon AAAS members by their peers. This year 471 members have been awarded this honor by AAAS because of their scientifically or socially distinguished efforts to advance science or its applications.

New fellows will be presented with an official certificate and a gold and blue (representing science and engineering, respectively) rosette pin on Saturday, Feb. 16, from 8 to 10 a.m. at the Fellows Forum during the 2008 AAAS Annual Meeting in Boston.

Díaz de la Rubia was one of 34 fellows elected in the physics category for distinguished contributions to computational materials science and radiation damage in materials.

"It's a great honor," Díaz de la Rubia said. "I'm thrilled to be among the ranks of so many talented researchers who delve into the frontiers of science and technology."

This year's AAAS fellows will be announced in the AAAS News & Notes section in today's (Oct. 26) issue of the journal, *Science*.

Díaz de la Rubia joined LLNL as a postdoc in 1989 after completing his Ph.D. in physics at the State University of New York at Albany. He carried out his thesis research in the Materials Science Division at Argonne National Laboratory and in the Materials Science Department at the University of Illinois at Urbana-Champaign.

The focus of his scientific work has been the investigation, via large-scale computer simulation, of defects, diffusion and microstructure evolution in materials in extreme environments.

At LLNL, he first worked on materials issues for the fusion program and then became a full-time staff member in the Chemistry and Materials Sciences (CMS) Directorate in 1994. Between 1994 and 1996, he focused his research activities around the development of physics-based predictive models of ion implantation and thin film growth for semiconductor processing in collaboration with Bell Labs, Intel, Applied Materials, IBM and other semiconductor corporations. Between



Tomás Díaz de la Rubia

1994 and 2002, he also was involved in the development of multiscale models of materials strength and aging in irradiation environments and worked in the ASC Program developing models of materials strength. In 1999, he became group leader for Computational Materials Science and helped build and lead an internationally recognized effort in computational materials science at LLNL. Between 2000 and 2002, he served as the CMS Materials Program Leader for NIF where he focused on optical materials and target development for NIF applications.

Díaz de la Rubia has published more than 140 peer-reviewed articles in the scientific literature, has chaired numerous international conferences and workshops and has edited several conference proceedings and special journal issues. He belongs to the editorial board of five major scientific journals and continues to serve in numerous national and international panels. He served as an elected member of the Board of Directors of the Materials Research Society between 2002 and 2005 and was elected a fellow of the American Physical Society (APS) in 2002. He is currently the vice chair (chair elect) of the APS Division of Computational Physics. Díaz de la Rubia was selected as the associate director for

Chemistry and Materials Science in 2002.

The tradition of AAAS fellows began in 1874. Currently, members can be considered for the rank of fellow if nominated by the steering groups of the association's 24 sections, or by any three fellows who are current AAAS members (so long as two of the three sponsors are not affiliated with the nominee's institution), or by the AAAS chief executive officer.

Each steering group then reviews the nominations of individuals within its respective section and a final list is forwarded to the AAAS Council, which votes on the aggregate list.

The council is the policymaking body of the association, chaired by the AAAS president, and consisting of the members of the Board of Directors, the retiring section chairs, delegates from each electorate and each regional division and two delegates from the National Association of Academies of Science.

The AAAS is the world's largest general scientific society, and publisher of the journal, *Science*. AAAS was founded in 1848, and includes some 262 affiliated societies and academies of science, serving 10 million individuals.

Isaacs serves on nuclear power and proliferation discussion panel

By Nancy Garcia
Newsline Staff Writer

Nuclear power appears ready to make a resurgence as a source of electricity for growing energy needs around the world, including a potential spread to developing nations. That, in turn is raising concerns about proliferation implications.

Tom Isaacs, director of Planning and Special Studies in the LLNL Director's Office, served on an American Academy of Arts & Sciences panel of distinguished speakers convened at Stanford University on Oct. 15. Panelists addressed the topic "Nuclear Power without Nuclear Proliferation?"

Fellow panelists were former defense secretary William Perry, a professor of management science and engineering at Stanford's Center for International Security and Cooperation, and Alexi Arbitov, co-director of the Non-Proliferation Program at the Carnegie Moscow Center.

Isaacs focused his remarks on the intersection of national security, nuclear energy and waste management. A particular concern, Isaacs said, is the potential spread of enrichment and reprocessing capabilities to additional nations. He believes the best protection would include an emphasis on international cooperation, to minimize the spread of these sensitive facilities. Opportunities to develop nuclear power could be linked to cradle-to-grave services to provide fresh fuel and reactor services at market prices as well as take-back provisions to handle the spent fuel.

"There are no operating nuclear waste repositories in the world," he said. "They are very expensive to build and very difficult to site and license."



Tom Isaacs

Leading nuclear countries should assist the effort to find a safe disposal for reactor waste, he believes, in return for assurances that recipient nations will not pursue indigenous enrichment or reprocessing. "We have an obligation to keep the world secure while helping to assure adequate energy supplies and future energy security. We all have the same interests. We need to work together so everybody, in developed and developing nations alike, sees this as in their best interests."

Arbitov spoke about the need for continued disarmament and dismantlement in both Russia and the United States. Perry spoke about the horrific potential consequences of proliferation.

Looking back on the evening, Isaacs said, "The whole idea was to bring together technical and policy experts to look at these issues from an integrated perspective. It's gratifying that more attention is being given to these concerns in this creative environment."

The event was the first in a major new initiative by a consortium of the Academy, Stanford, and Harvard called "The Global Nuclear Future." Isaacs called the audience "remarkably accomplished." It included about 200 fellows of the American Academy of Arts & Sciences, as well as interested faculty members, graduate students and special guests. After the panel, Isaacs was pleased to talk with Academy fellow and Stanford alumnus Stephen Bechtel Jr., co-owner of Bechtel Corp.

The session will be published in an edition of the Academy's *Bulletin*. It was dedicated to the memory of Stanford Linear Accelerator founding director Wolfgang Panofsky for his contributions to theoretical physics and arms control.

Budget uncertainty leads to delay in annual salary implementation

With federal budget uncertainty and increased costs for fiscal year 2008, Director George Miller, with input from the senior management, has decided to delay a decision on the implementation of the Lab's annual salary increases.

"I realize that delaying this decision may not be popular," Miller said. "But in light of the continuing resolution situation, we need more financial clarity in order to make an informed decision."

At that point, Lab managers will decide if there will be raises in 2008 and if implemented, whether the increases will be retroactive to Oc. 1, 2007.

"We've heard from a number of employees who have suggested we delay the implementation of our raises," Miller said. "In light of our budget uncertainty, I agree with them. It is my hope that this is just a delay, but we will make that decision in a few months."

The federal budget's current Continuing Resolution expires in mid-November. It is possible there will be another CR. While LLNL employees have succeeded in belt-tightening in the past few years – resulting in substantial savings – the impact of national budget uncertainty, the additional contract costs associated with the management fee, taxes, health care and reduced attrition require that additional aggressive steps be taken.

Each principal associate directorate (PAD) is developing a business plan that identifies the scope and items that may need to be reduced or eliminated.

LLNL senior management will then review the PAD business plans and prioritized work scope.

Energy efficient lights illuminate Lake Haussmann walkways

With daylight hours diminishing in the fall and winter seasons, the Laboratory is testing out photovoltaic pathway lighting utilizing newly developed linear LED lamps.

Five light standards are being placed to illuminate the walkway along the east shore of Lake Haussmann, from Bldg. 551E/W to the Central Cafeteria. Lighting standards are located at each end of the two new foot bridges, with another mid-way between them.

Each of the solar lighting units is independent and none are connected to the power grid. Installation is less costly than conventional lighting, avoiding trenching, running conduit, and electric power to the poles. The new LED lamps are rated at 100,000 hours of life and are a very bright white (6500°F). The lighting is automatically controlled to provide illumination six hours from sunset and two hours before sunrise.

The Energy Management Program is seeking employee feedback. Employees may contact Energy Manager Blair Horst via e-mail, horst1@llnl.gov, or call 2-8965.



REMINDER

401(k) pre-tax and after-tax contributions

Employees who elect to enroll in the LLNS 401(k) Plan with pre-tax contributions should be aware that their contributions will automatically switch to after-tax once contributions reach the maximum annual pre-tax limit, which in 2007 is \$15,500 for those under age 50 and \$20,500 for those 50 and over as of Dec. 31. If you do not wish to have your contributions continue on an after-tax basis, you will need to cancel your election at Fidelity once you reach the pre-tax limit and re-elect for contributions beginning in 2008. Note that contributions made to the UC 403(b) Plan in 2007 count toward the maximum annual pre-tax limit.

New officers for Women's Association



JACQUELINE MCBRIDE/NEWSLINE

(From left) Jennifer Nelson-Childs, vice-president; Chung Bothwell, treasurer; R. Ann Bliss, secretary; and Dr. Ronit Ben Abraham-Katz, president.

The new fiscal year marks a new slate of officers for the Lawrence Livermore Lab Women's Association (LLLWA), celebrating 35 years as a resource for improving the quality of women's work life at LLNL.

The officers for 2007-2008 are:

President — Dr. Ronit Ben Abraham-Katz, lead physician for the treatment area in Health Services.

Vice-President — Jennifer Nelson-Childs, environmental analyst with the ChemTrack and Technical Services Group of the Lab's Operations and Regulatory Affairs Division (ORAD).

Secretary (2nd term) — R. Ann Bliss of the CMELS Directorate and the MST Division in the Materials Synthesis and Nano-Beam Precision Characterization group, more specifically with the Electron Microscopy Team.

Treasurer — Chung Bothwell, resource manager for the Fusion Energy Program, Physics and Advanced Technologies Directorate.

"This will be a year of transition for many Lab women," incoming president Katz said.

With that in mind, the LLLWA plans to offer noontime discussions and presentations that will address key issues such as job change; family structure change (new babies; children leaving for college); baby boomers turning 50; caring for elderly parents; women's health issues, such as heart disease manifestation and stroke recognition and prevention in women; how to maintain your brain power; how to slow the decline in cognition with advanced age; how to pay for your children's education; stress-management tools; and work and life balance.

Those who work at LLNL are invited to join the LLLWA. For more information, go to the Web at <https://lllwa.llnl.gov/>

Visit the LLLWA used book sale next week, Nov. 5-9, from 10 a.m.-2 p.m. in Trailer 4675, room E/F (old central cafeteria). Books, CDs, DVDs, audio books, videotapes, cassette tapes, puzzles and games are on sale. Proceeds benefit the LLLWA scholarship fund. For more information, contact Barbara Brooks, 3-4171, or Elizabeth Gebur, 4-3404.

SCIENCE NEWS

Understanding nanotubes at atomic scale could lead to improved devices

By Anne M. Stark
Newsline staff writer

Carbon nanotubes have been employed for a variety of uses including composite materials, biosensors, nano-electronic circuits and membranes. While they have proven useful for these purposes, no one really knows much about what's going on at the molecular level. For example, how do nanotubes and chemical functional groups interact with each other on the atomic scale? Answering this question could lead to improvements in future nano devices.

In a quest to find the answer, researchers for the first time have been able to measure a specific interaction for a single functional group with carbon nanotubes using chemical force microscopy — a nanoscale technique that measures interaction forces using tiny spring-like sensors. Functional groups are the smallest specific group of atoms within a molecule that determine the characteristic chemical reactions of that molecule.

A recent report by a team of Laboratory researchers and colleagues found that the interaction strength does not follow conventional trends of increasing polarity or repelling water. Instead, it depends on the intricate electronic interactions between the nanotube and the functional group.

"This work pushes chemical force microscopy into a new territory," said Aleksandr Noy, lead author of the paper that appears in the Oct. 14 online issue of the journal, *Nature Nanotechnology*.

Understanding the interactions between carbon nanotubes (CNTs) and individual chemical functional groups is necessary for the engineering of future generations of sensors and nano devices that will rely on single-molecule coupling between components. Carbon nanotubes are extremely small, which makes it particularly difficult to measure the adhesion force of an individual molecule at the carbon nanotube surface. In the past, researchers had to rely on modeling, indirect measurements and large microscale tests.

But the Livermore team went a step further and smaller to get a more exact measurement. The scientists were able to achieve a true single functional group interaction by reducing the probe-nanotube contact area to about 1.3 nanometers (one million nanometers equals one millimeter).

Adhesion force graphs showed that the interaction forces vary significantly from one functionality to the next. To understand these measurements, researchers collaborated with a team of computational chemists who performed *ab initio* simulations of the interactions of functional groups with the sidewall of a zig-zag carbon nanotube. Calculations showed that there was a strong dependence of the interaction strength on the electronic structure of the interacting molecule/CNT system. To the researchers' delight, the calculated interaction forces provided an exact match to the experimental results.

"This is the first time we were able to make a direct comparison between an experimental measurement of an interaction and an *ab initio* calculation for a real-world materials system," Noy said. "In the past, there has always been a gap between what we could measure in an experiment and what the computational methods could do. It is exciting to be able to bridge that gap."

This research opens up a new capability for nanoscale materials science.

The ability to measure interactions on a single functional group level could eliminate much of the guesswork that goes into the design of new nanocomposite materials, nanosensors, or molecular assemblies, which in turn could help in building better and stronger materials, and more sensitive devices and sensors in the future.

Other Livermore researchers include Raymond Friddle, Melbourne LeMieux and Alexander Artyukhin.

Researchers from the Georgia Institute of Technology, University of Turin in Italy, UC Berkeley and UC Davis also contributed to this report.

"In the past, there has always been a gap between what we could measure in an experiment and what the computational methods could do. It is exciting to be able to bridge that gap."

— Aleksandr Noy

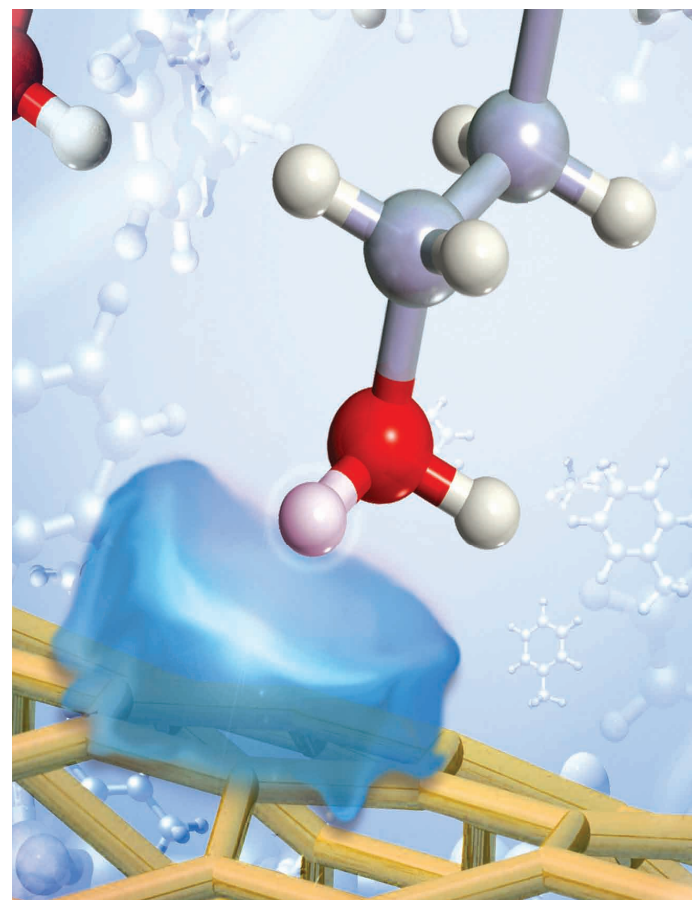


ILLUSTRATION BY SCOTT DOUGHERTY, LLNL

An artist's representation of an amine functional group attached to an atomic force microscopy tip approaching a carbon nanotube surface in toluene solution. The translucent blue shape on the nanotube represents the polarization charge forming on the nanotube as the result of the interaction with the approaching molecule. Chemical force microscopy measures the tiny forces generated by this single functional group interaction.

Run for HOME 2007



The Run for HOME will once again kick off the Laboratory’s annual HOME (Helping Others More Effectively) Campaign. This year’s sponsor of the Run for HOME is the Science & Technology Principal Associate Directorate (PAD).

The Run for HOME is next week on Halloween Day, Wednesday, Oct. 31, 11:30 a.m. to 1:30 p.m.

Come participate in the costume contest. With this year’s race being held on Halloween, costumes are encouraged. Don’t forget the centipedes. There will be five individual costume awards and two group awards. Categories include: most humorous, most creative, scariest, best impersonation, most outrageous, best group theme (minimum of five participants), and most creative centipede (minimum of ten participants

and must be connected). Participants may walk just for fun or run to win one of the first place prizes. The Run for HOME begins promptly at noon and the winners will be announced and prizes awarded at 12:45 p.m. Race winners will be awarded a monetary award, which they may donate to the charity of their choice.

There will be four individual race winner awards. Award categories include: first place open male runner, first place open female runner, first place male masters runner, first place female masters runner. These individuals will be approached by volunteers and escorted to the winners’ table for recording purposes. All participants who turn in a scorecard will receive a certificate of participation.

Everyone participating in the Run for HOME will receive a free T-shirt. Music will be provided by Invalid Entry.

HOME Agency fair

The National Ignition Facility (NIF) and Photon Science PAD is sponsoring the 2007 HOME Campaign.

All employees are invited to learn firsthand about some of the nonprofit agencies featured in the HOME Campaign booklet and how each agency supports the local community by visiting the tented agency fair. The nonprofit-agency fair will be held near the race starting point. The fair will be open between 11:30 a.m. and 1:30 p.m. Representatives will be ready to answer questions and provide information specific to their agency.

Parking lots A-1, A-2, Z-1, Z-2, Z-3, Z-4 and Z-7 will be closed from 11 a.m. to 2 p.m.

Taxi Service

Lab taxi service to and from the Run for HOME will be increased between the hours of 10:30 a.m. and 2 p.m. To use taxi transportation, call 2-8294 or 2-TAXI. Plan accordingly, as ridership will be high.

Site 300

The Run for HOME will take place at Site 300 on a 3,000-meter course comprised of a double run around Site 300 buildings, starting at Bldg. 870. There will be two race winner awards: first place male runner and first place female.

For more detailed information about the 2007 HOME Campaign and Run for HOME, go to the Web at <https://home.llnl.gov/>



Run for HOME 2007

When

Halloween Day
Wednesday, Oct. 31, noon

Where

The race will start on West Perimeter Drive just outside of parking area Z-3 near Bldg. 132
Site 300 race will take place on the 3,000-meter course at Site 300

Start Time

Noon

Run Distance

2.791 Kilometers
1.7334 Miles

Instructions

All participants should assemble at 11:30 a.m. in the Z-3 parking area west of Bldg. 132. Race volunteers will be situated in the starting area with signs indicating where race participants should gather for the race start.

As participants come across the finish line, they will need to note the elapsed time on the race clock. Upon crossing the finish line, all participants will be handed a scorecard and should continue moving toward the runner check-in tables. At the tables, participants will be given pencils to fill out the cards prior to depositing them into the provided boxes. From the finish card tables, participants should proceed to the T-shirt tables for their free T-shirt.

Finally, they can continue to the HOME fair tent featuring the agencies available for employee contributions through this year’s campaign.

Creative and amusing costumes are always welcome.

i.want ads

Due to the high quantity of ads and space limitations, these want ads have been abbreviated. For the complete ad listings, refer to the internal Website: <http://www-r.llnl.gov/pao/news/wantads.html> or for the latest pdf download and retiree information, see the external Website: <http://www.llnl.gov/pao/employee/>. Please note that these ads appear on the Web.

Date of ads: Approx. Oct. 17 to Oct. 24. Ads appear on the Web for seven days.

AUTOMOBILES

1968 Corvette \$30,000. Frame-off restoration. Call after 5 p.m. 925-588-1204

1995 Chevy Impala SS \$10,750. Dark cherry with gray leather interior. 106K miles. 209-823-5573

1996 Jeep Grand Cherokee 4x4 \$4,500. 161K miles. 925-447-8291

2002 VW Jetta 1.8 Turbo GLS \$10,000. 58.7K miles. Cell 510-219-5846 or 510-548-0704 9 rings for message

2003 Mazda Protege \$7,000. 59K miles. See at lot near Bldg. 181. 925-443-1074

2004 Chevy Tahoe \$20,000. LT. 209-629-4122

2004 Ford Taurus SES \$7,500. 44.5K miles. 925-294-9651

2004 Pontiac GTO \$22,500. 16K miles. Ask for Steve 702 806-3337

2005 Honda Pilot EX \$25,500. 28.5K miles. 925-447-3364

1998 Mazda MPV \$4,200. 925-455-1730.

Mercedes 2002 C320 \$13,900. 925-876-2271

Nova, Chevy GMC truck, Camaro Parts. Make offer all parts, new, never installed. 925-487-4974

BICYCLES

Wanted: Old/vintage mountain bike stuff. Also wanted: Mustache handlebars and Brooks saddle. 925-455-6785

BOATS

26' Clipper Marine Sailboat w/Trailer \$2,800. Also, 1998 Evinrude long shaft, 9.9 Yacht Twin motor, \$1,000. 209-824-3968.

2004 Malibu XTL. \$32,500. 320hp. 209-599-3130.

ELECTRONIC EQUIPMENT

65" Hitachi Widescreen Project TV \$325. 925-373-9276

External Firewire CD/DVD burner \$75. Mac and PC compatible 925-606-0755

Tower computers \$25. Two - use for parts 925-735-6002

Tripod \$65. Camcorder fluid head tripod 925 -735 -6002

GIVEAWAY

Free moving boxes. Mostly medium and small sizes. 925-454-9224

HOUSEHOLD

Air circulator fan \$30. 925-648-0671

Girls' bedroom furniture. \$25 OBO. 925-449-5481

Computer cart \$25. 510-653-1017

Computer desk \$75. 925-640-5469

36" Thermadore CEH365Q Ceran glasstop cooktop \$395. 925-455-9329

Couch/loveseat & wall art \$500. 209-483-9675

Octagonal oak dining room table \$550. 2 extensions, 6 captain's chairs. 925-373-4791

Fire truck toddler bed \$75. 925-556-6210.

Furnace filters. New. 925-735-6002

Granite slab \$315. 36" x 115" 510-792-1538

Winnie the Pooh and Piglet halloween costumes \$18 each. 925-989-8059

Holmes Twin window fan - new \$25. 925-648-0671

Keller 8' aluminum ladder \$25. 510-653-1017

Ladder shelving, solid wood. 925-640-5469

GE microwave \$100. 925-783-9460

GE SpacemakerII microwave oven \$100. 925-735-1841

Presto Heat Dish \$20. 209-604-1025

La-Z-Boy recliner \$175. 925-443-9266

Whirlpool refrigerator, \$100 firm. Antique dresser, \$50 firm. 925-447-1057

Sofa and loveseat \$250. 925-447-7088

Sofa/loveseat. Blue plaid. \$200 for both, or \$150 for sofa, \$75 for loveseat. 925-443-9266

Solid oak twin beds. \$160ea or both for \$300. 925-513-1786

LOST AND FOUND

Reading glasses in case w. fake fur (pinto pony) insert. If found, please call 2-0855 or 2-2464.

MISCELLANEOUS

Bathroom storage/towel rack \$20. 925-640-5469

Breyer horses \$10 each. 209-914-2132

Bridgeport Mill \$2,000. 925-447-8847

Christmas stuff. Musical draping bells \$10, mouse ornaments \$5, tree stand \$20, metal sleigh family \$30, Floyd and Flossie \$30, musical snowman w/popup hat \$20, tree ladder \$10. 925-640-5469

Heavy duty, padded, outdoor recliner, \$30. 209-604-1025

Garage Cabinet \$20. Electric Chicago Sawsall \$10, 4" Grinder \$10, 6" Heavy Buffer \$10 209-244-8241

Garage Sale . Saturday, Oct. 27, 2143 Calla Lily Common, Livermore, 8 a.m.-1 p.m. 925-449-0531

Hilason Treeless Saddle \$300 OBO. 209-824-6089

Redwood picnic table, \$50. Weedeater lawnmower, \$100. 925-447-1057

Rave Sports Blade tube for boating \$30. 925-648-0671

Sheraton 4 Points, Bakersfield hotel stay \$75. Friday or Saturday night. Includes brunch for two. 925-648-0671

Spa \$950. Sundance 2003 Optima model. You haul - we can help at our end. 925-606-4365

Spotting Scope \$500. Bushnell Elite spotting scope with rain-gaurd \$800 new 925-516-8339

Stewardess Halloween Costume \$5 925-640-5469

Wood Antique Fishing Lures. 209-914-2132

Yard Sale, Sat. Oct.20, Guilford Ave. Livermore 925-447-3079

MOTORCYCLES

1997 Honda CBR900RR \$3,750. 925-518-4883

82 Yamaha MX100 \$425. 209-836-3481

1978 Honda Odyssey, \$1,000. 209-239-2812

YFZ 450 Quad 2006 \$5,000. 209-833-3785

MUSICAL INSTRUMENTS

Gemeinhardt flute \$300. 925-449-1169

Fender Squire Strat WH and Fender Guitar Amp Frontman 15g \$85. 209-952-1247

Weber piano \$300. 925- 447-3912

PETS

Beautiful medium long hair

tortoise shell female cat. Five months old. Free to good home. 925-846-9564

Blue Fronted Amazon parrot \$600. 6 years old. Comes with cage. 209-470-1971

Free lovable kittens in need of home. 209-304-3775

Jack Russell Puppies \$150. 1 Male, 2 Female, 1st Shots, Crate Trained. Ready to go. 925-449-1363

Pug puppies \$600/each. Three male. Available Nov. 10. 209-839-0167

RECREATION EQUIPMENT

Ab Mouse Exerciser \$10. 925-640-5469

Bell Kingshead Helment WH \$25. 209-952-1247

3 Bike Jerseys \$45. 3XL, 4XL & 6XL. 209-952-1247

Non-folding electric oldie treadmill. \$30. 925-640-5469

Treadmill \$100. 925-423-7463

RIDESHARING

Modesto to LLNL carpool has opening for one driver/rider. 9/80's. 7 a.m. - 4:30 p.m. Call Mike, 2-9102, or 209-848-0365

Montclair/Oakland Vanpool \$160. Leaves Montclair at 7 a.m. Leaves Lab at 5:30. Stops at Joaquin Miller also. Call for more details, 4-6215 or 510-531-4399

Need riders for Vanpool from San Mateo. Work hours 8 a.m. to 4:45 p.m. Leave from under freeway Hwy 92 and 101 at 7 a.m. Call 3-9657 or 650-952-4646

SHARED HOUSING

2 Rooms for Rent - Available now \$675 each. Full house privileges. Utilities included. Pool/spa. Cable in room. Wireless internet. Additional pictures available upon request. 925-454-9224

Female only/own furnished master bdr, bath. \$700./mo. Includes utilities, parking, pool, and tennis court privilege. Pets not allowed. Available Nov. 1. Karen 925-447-4775

Room for rent in Livermore, \$600. Furnished incl. utilities. Call 925- 443-8448

TRAILERS

1993 Scamp 13-foot trailer \$4,500. 925-454-8827

Desert Fox 21SW Toy Hauler \$18,000. 925-516-8339

TRUCKS

1995 GMC 4x4 \$4,500. 200k miles. 925-784-0480.

2001 Chevy Tahoe 4WD \$16,025. 67K miles. 925-462-7736

73-75 Chevy Truck Rally wheels, \$120. 209-832-0765

VACATION RENTALS

Arnold mountain cabin. 4BR 2BA. 925-245-1114

Heavenly Tahoe Condo \$1,500/week, 2BR 2BA condo. 925-686-6747

Kona Hawaii Vacation Rental Home 415-377-5361 for info/website.

Maui, HI. Kahana Reef ocean-front 1BR/1BA condo. 925-449-0761

Pinecrest Lake cabin \$225/wknd. 925-449-5513

S. Lake Tahoe Vacation Resort Christmas Week Rental \$1,800/wk. Dec. 22-29. 2BR, 2BA, sleeps 8. Walk to ski lift. 510-651-1555

Santa Cruz beach house. 3 blks from ocean. 2BR, 2BA. 925-245-1114

3BR 2BA South Tahoe chalet. 209-599-4644

3BR 2BA in Tahoma, \$125-175/night. 925-813-2597

South Tahoe vacation rental \$700/wk. 925- 556-9511

Soda Springs/Donner summit Clasic A frame, 2BR 1BA + loft, 5 ski areas within 5 miles, \$500/wk 209-836-3481

Monte Rio wine country rental \$150/night. 925-513-4767

WANTED

American Girl dolls, clothes and accessories. 925-422-1421

3 shelf book shelves, nothing too tall. 925-961-1920.

Coin & Stamp collections. Foreign and U.S. stamps interested in. 925-449-1294

I need a tall narrow dresser. Not your standard tall dresser, must be narrow. 925-961-1920.

Looking for a good condition refrigerator and electric washer and dryer. Affordable please. 209-329-5877

David Conrad

On Friday, Oct. 12, retired engineer David Conrad died from a series of strokes at the Vanderbilt University Medical Center in Nashville, Tenn. He was 59. A Livermore resident for three decades, Conrad moved to Columbia, Tenn., in July of 2006, just a month after his retirement from the Lab.

Conrad received a bachelor of science degree in electrical engineering from Mississippi State University and a master of science in electrical engineering from the Georgia Institute of Technology. He served as a first lieutenant electronics engineer officer for the U. S. Army Electronics Command.

Conrad began his career at Livermore in November 1976. His career path led through numerous engineering appointments from AVLIS and IPAC to N-Division, where he had been test director during the subcritical plutonium experiments at the Nevada Test Site. He retired in June 2006 as deputy associate director, Electronics Engineering.

"Dave was more than a mentor. He was a friend and a guidance counselor," said long-time co-worker Walter Deacon, who had talked with Conrad by telephone just before his hospitalization. Deacon, who had worked with Conrad on the subcritical series at NTS, characterized him as "...the epitome of a professional manager. He cared deeply



David Conrad

about his people and the mission of the Laboratory. And he tried his utmost to support both in whatever job he was in."

NTS Test Readiness lead engineer Karla Hagans said, "Dave was the first person from the Lab that I ever met. It was 1984 at Georgia Institute of Technology. We had both received our MSEE degree, and he recruited me then and there."

Hagans said Conrad's impact on mid-career employees was tremendous. "He was a leader to many, but a mentor to many, many more."

Conrad achieved countless community accolades for his local involvement, which included: co-founder of the Livermore Valley Educational Foundation; chairperson of the Livermore Chamber of Commerce Business/Education Committee; co-president of the Granada High School Supporters Club; member of the Fiscal Policy Advisory Committee for the Livermore Valley School District; member of the Advisory Board for the Extended Opportunities Program at Las Positas College.

Conrad is survived by his wife, Janet; a daughter, Sally, of Broomfield, Colo.; and son, Timothy of Livermore. The family invites friends to a remembrance service at Trinity Baptist Church, 557 Olivina Avenue, on Thursday, Nov. 1, at 4 p.m. There will be a gathering at the church following the service.

Lyle V. Helstrom

Lyle Helstrom died Oct. 3 at his home in Manteca.

Helstrom worked as a purchasing agent at the Laboratory for 24 years. He was an exalted ruler and charter member of the Livermore Elks Lodge #2117.

He is survived by his wife, Dulce; son Greg and wife Carol; daughter Kelly and partner Carolyn; daughter Zel and husband Brian; and four grandchildren

Private services have been held.

Arthur Lindsay Henry

Arthur Lindsay Henry died Oct. 11 at his home in Monterey, Calif. He was 80.

Born June 30, 1927, Henry was a graduate of Livermore High School and Stanford University. He served in the U.S. Army during World War II. After the war, he worked for the *Livermore Herald* as a news editor and later became an administrator at the Laboratory. Henry served on the Livermore Library Board, Valley Memorial Hospital Board and Fallbrook Planning Commission.

In addition, he was a longtime member of Rotary and a past president

of the Fallbrook Friends of the Library. Henry enjoyed travel, symphony, theater, reading and current events.

He is survived by his wife of 54 years, Elizabeth Driscoll Henry; sons and daughters-in-law, Arthur Jr. and Patti, and Kenneth and Laura; grandchildren Marissa, Peter, Madeline and James; sister Nancy Lyons of Davis; and brother Robert Henry of Stockton.

Donations in his memory may be made to the American Cancer Society. Friends are invited to sign the online guest book at: www.thepaulmortuary.com.

PEOPLE NEWS

Nicolas Broderick

Longtime classification adviser Nicolas Broderick died Saturday, Oct. 20, at Kaiser Permanente Medical Center in Walnut Creek, following a short illness. He was 82.

Broderick had been active in the field of classification and declassification for more than 35 years. Broderick had been a staff member in the Office of Classification and Export Control for the past seven years, where he had been involved in large-scale reviews and patent reviews, working as an Authorized Derivative Classifier and Declassifier. He served as a reviewing official for unclassified controlled nuclear information and worked with export control and its regulations.

He received his bachelor's degree in physics from Holy Cross College, studied nuclear physics and engineering at Fordham and Syracuse universities, and completed his masters at the University of Colorado. He spent nearly four years on active duty in the U.S. Navy as an aviation cadet.

Prior to his service at Livermore, Broderick's career path included

Sylvania, Thomas Electronics and Hewlett Packard. For 23 years he supported the Test Program, working at EG&G/EM-Amador Valley, where his last assignment was classification officer. He worked three years at the Department of Energy's Oakland Office, where he was acting classification officer for almost a year before coming to the Lab to work part-time.

For much of his life, Broderick was a member of a variety of professional organizations as a registered engineer, and he earned a commercial pilot's license. He also held a patent relating to the cathode ray tube.

Broderick is survived by his three children. His wife, Dorothy, died in November 2000.

There will be a rosary on Friday, Oct. 26, at 7 p.m. at the Wilson & Kratzer Chapel of San Ramon Valley, 825 Hartz Way in Danville. Funeral Services will be Saturday, Oct. 27, at 1 p.m. at St. Isidore's Church, 440 La Gonda in Danville. A reception will follow at his home, 306 Del Amigo Road in Danville.

Owen Roland Van Dyke

Retired safety engineer Owen Roland "Van" Van Dyke died Wednesday, Oct. 17 at his home in Pioneer, Calif. He was 77.

Born May 23, 1930, in New Brunswick, N.J., Van Dyke served in the U.S. Navy and later received a bachelor's degree from San Jose State University in engineering. He was a safety engineer for the Lawrence Berkeley and Lawrence Livermore national labs for 28 years. At Livermore, he started in Mechanical Engineering, but spent most of his career in Hazards Control.

Van Dyke loved living in Amador Pines and he was a member of Amador County CalPERS.

He was preceded in death by his wife, Marjorie, in 1994. Van Dyke was fortunate

to share many years with his companion Rita May Anderson of Kamloops, British Columbia and her children Marie MacDonald and her son-in-law Hector, Doogie Anderson and his wife Diana, and families.

Van Dyke is survived by daughters and sons-in-law Kimberly and Mac Smith, Ann and Steve Anglin, and Heidi and Dave Horvitz; sister and brother-in-law Barbara and Ray Pickell. "Tractor Papa" was a loving and supportive grandfather to Amy and Sara Anglin, Carl and Jack Horvitz and Margie Smith.

Donations in his name may be made to Hospice of Amador. There will be a gathering at Van Dyke's home on Saturday, Oct. 27. For more information, call (209) 295-5597.

NEWSLINE

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SCIENCE NEWS

Bio assessments improved by combining microscopy methods

By Nancy Garcia
Newsline staff writer

A new research technique is under formation at the Laboratory to quickly assess how cells respond to pathogen invasion, based upon a patented system that delivers foreign material at the same time that it records the binding and response.

The device combines two microscopy methods. Disease-causing ligands, the part of a pathogen involved in binding to a host cell, are delivered by the same probe that is used to create an image with atomic force microscopy (AFM). AFM scans surfaces with a sharp tip at the end of a micro-scale cantilever. When the tip is next to the surface, forces deflect the cantilever. The deflection is detected by displacement of a spot of laser light which is reflected from the cantilever arm. The measured deflection can be used to characterize the binding between the pathogen ligand and host cell surface receptors.

The other method is confocal fluorescent microscopy. This approach provides particularly sharp images of fluorescently tagged areas or structures by screening out illuminated regions beyond a particular focal point. A structure of interest is the actin cytoskeleton, which is involved in cell shape and movement, as well as uptake of

extracellular material, including some pathogens.

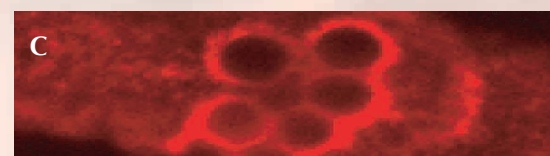
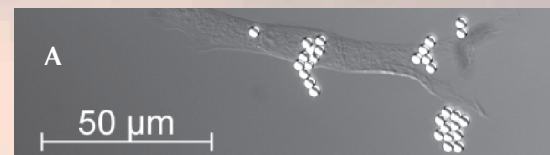
The goal, according to principal investigator Amy Hiddessen, is to quantitatively characterize the molecular regulators of pathogen entry into a host cell with high resolution on a single-cell level.

Using a third technique that is currently being integrated into the instrument, the team plans to cut actin fibers that physically mediate engulfment of a ligand-coated bead, at various time intervals, to characterize the process. This cellular surgery will be performed with focused pulses from a femtosecond laser in order to disrupt only one portion of the cytoskeleton without damaging other regions or killing the cell. The technique has been designed to reveal mechanical dynamics that cannot be obtained using standard chemical techniques that paralyze or kill the entire cell.

A high-throughput cell array would provide a platform to deliver pathogenic factors to many cells simultaneously to detect virulence and measure responses. The knowledge developed should support the interests of public health and national security.

The research team consists of physicists Todd Sulchek, Nan Shen, Alex Artyukhin, Craig Blanchette and Mina Bionta, chemists Amy Hiddessen and Youn-hi Woo, and biologist Cindy Thomas.

Interaction of fibronectin-coated latex beads with living NIH 3T3 fibroblast cells.

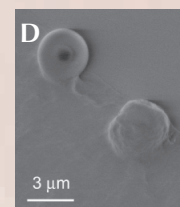


A: Micrograph of a cell with attached beads.

B: Fluorescence image of the same cell as in A stained with antibodies against beta-1 integrin, the main receptor for fibronectin in these cells.

C: Closeup from B showing a cell response in the form of integrin accumulation around the beads.

D: Scanning electron micrograph of two beads interacting with the cell surface, one of which (front) is internalized (inside the cell membrane).



A Nobel cause



JACQUELINE MCBRIDE/NEWSLINE

From left, Ben Santer, Tomás Díaz de la Rubia, Dona Crawford and Dave Bader discuss climate studies during a luncheon for LLNL researchers who contributed to the Intergovernmental Panel on Climate Change (IPCC), which, along with former vice president Al Gore, recently won the Nobel Peace Prize.

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